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Stull

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(54) **COMPRESSION TOOL**

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H01R 43/01 (2006.01)

(52) **U.S. Cl.**
USPC **29/749**; 29/751

(58) **Field of Classification Search**
CPC H01R 43/015; H01R 43/0425
USPC 29/751, 749, 750
See application file for complete search history.

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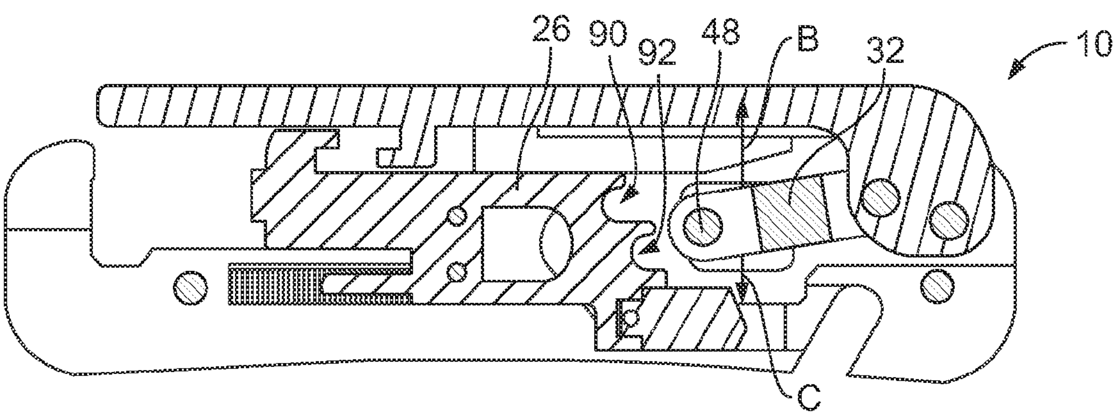
Primary Examiner — Livius R Cazan

(57) **ABSTRACT**

A compression tool for terminating wires to a connector includes a frame that has a receiving space configured to receive the connector. A handle is rotatably coupled to the frame. A ram is held by the frame. The ram has an engagement end within the receiving space that is configured to engage the connector. The ram is movable between an initial position and a final position. A link is coupled between the ram and the handle. The link is variably positionable with respect to at least one of the handle or the ram to change the final position of the ram within the receiving space to control a shut height of the compression tool.

20 Claims, 3 Drawing Sheets



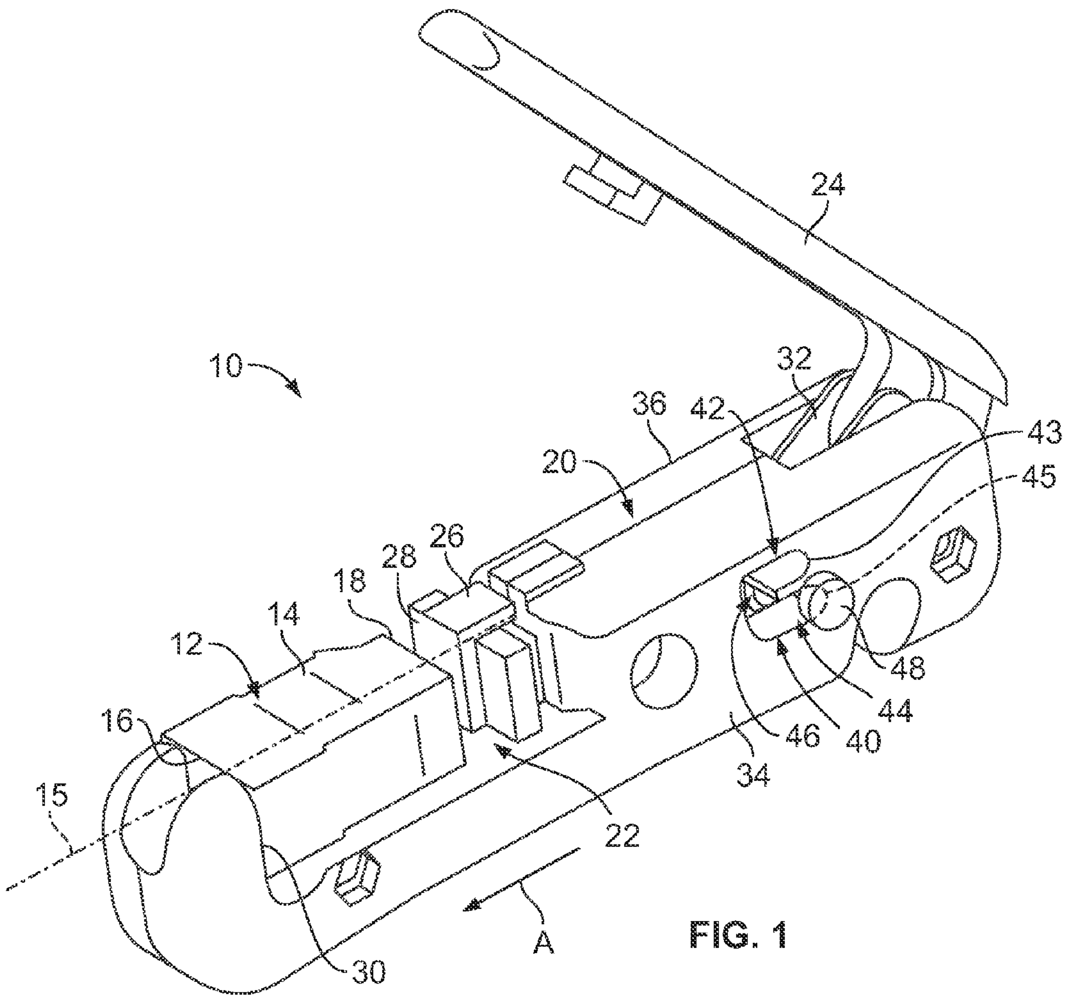

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FIG. 1

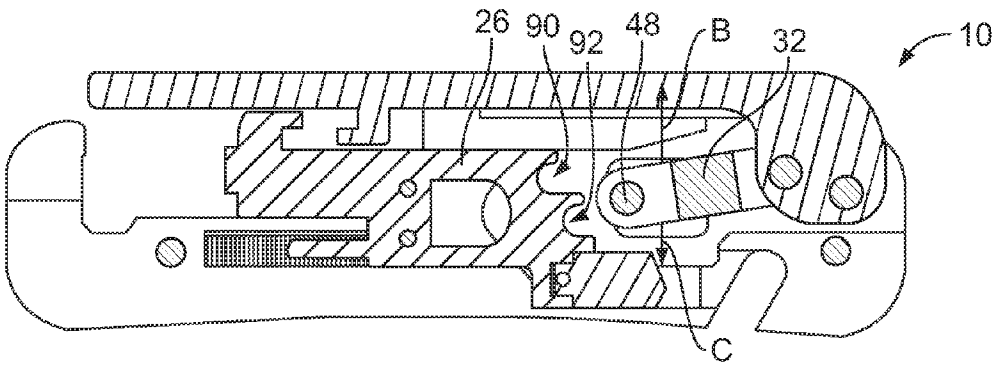
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FIG. 3

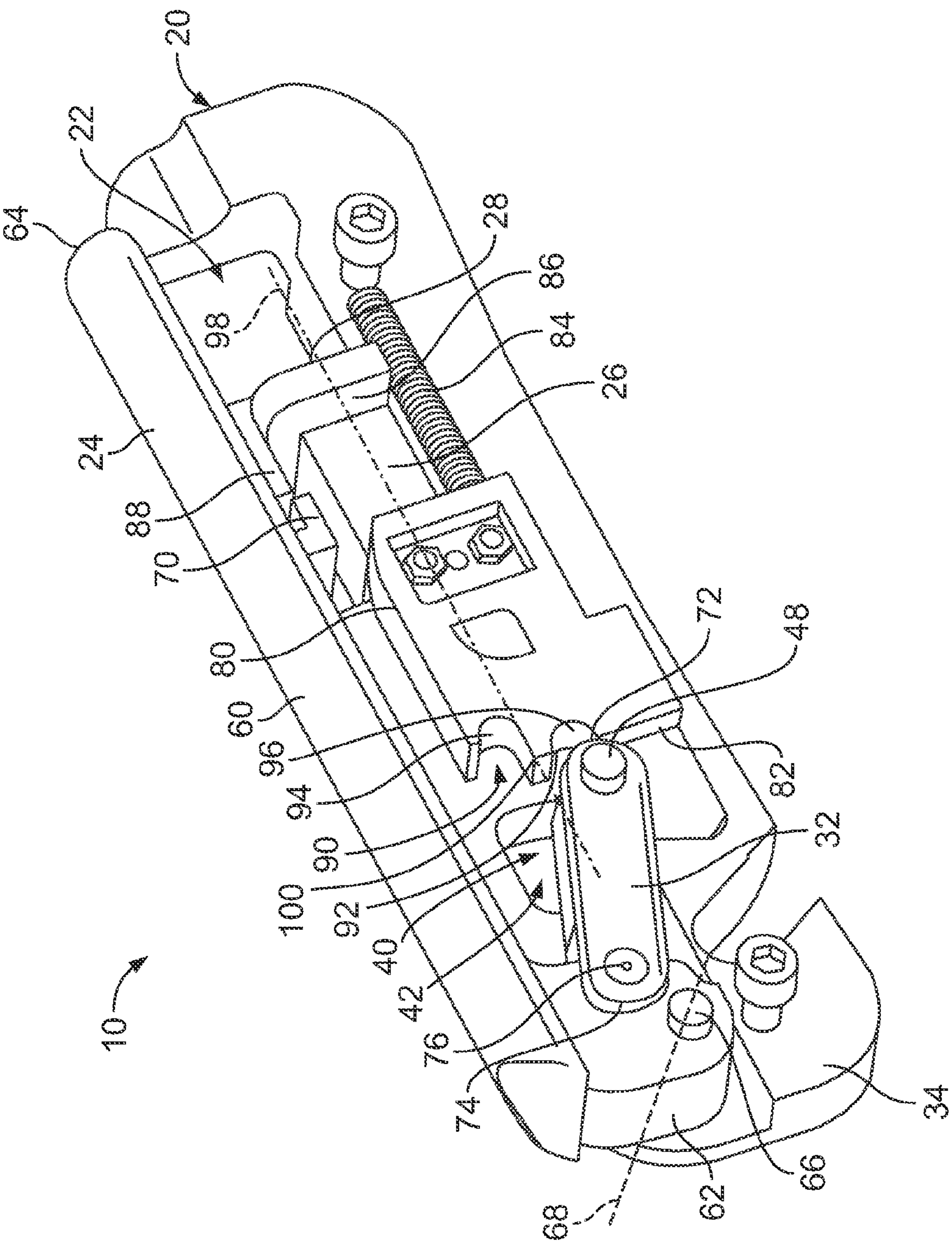
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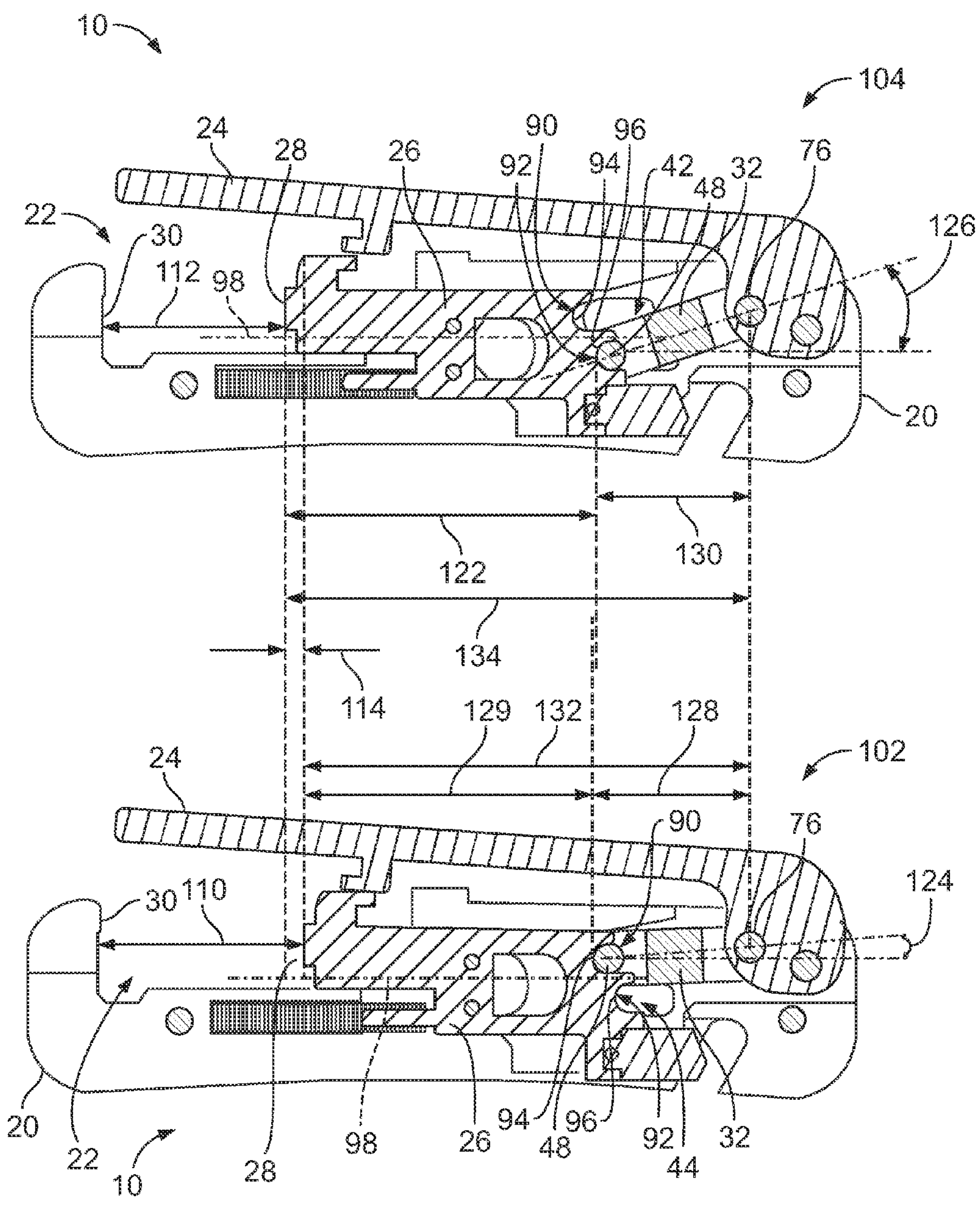
FIG. 2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114
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132
128
102
24
90
76
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110
124
20
22
10
28
98
26
94
48
96
92
44
32

FIG. 4

COMPRESSION TOOL

BACKGROUND OF THE INVENTION

The subject matter herein relates generally to compression tools for terminating wires to electrical connectors.

Compression tools are known for terminating wires to electrical connectors such as connectors. The connectors are loaded into the compression tool and a handle is squeezed to press the connector onto the wires to make electrical connection therebetween. For example, the connector may include insulation displacement contacts (IDCs) that are pressed onto the wires to make electrical connection therebetween. The compression tools typically include a ram connected to the handle that is actuated when the handle is squeezed. The ram engages the connector and presses the connector onto the wires.

Known compression tools are not without disadvantages. For instance, the compression tools have a fixed relationship between the ram and the handle such that the compression tools have a single shut height. In other words, the ram is pressed to the same final position every time the handle is squeezed to the closed position. However, typically different sized connectors are known and in use. In order for the tool to be used with different sized connectors, the connector includes a family of spacers that may be placed in the space between the ram and the connector to change the shut height of the compression tool. The spacers are separate components and may be easily lost, and increase the overall cost of the compression tool.

In some situations, when long connectors are being terminated, the operator uses the tool by only partially closing the handle to an intermediate, rather than fully closed, position to reduce the shut height of the compression tool to accommodate the longer connector. However, such use of the compression tool requires a skillful operator and extra time as the operator must estimate the amount of closing needed to fully terminate the connector to the wires. Partial termination may occur, leading to a defective connector. Additionally, over-closing may lead to damage to the connector.

A need remains for a compression tool that can terminate different sized electrical connectors. A need remains for a compression tool that allows the ram to be variably positionable with respect to the handle to define different shut heights for the compression tool.

BRIEF DESCRIPTION OF THE INVENTION

In one embodiment, a compression tool is provided for terminating wires to a connector. The compression tool includes a frame that has a receiving space configured to receive the connector. A handle is rotatably coupled to the frame. A ram is held by the frame. The ram has an engagement end within the receiving space that is configured to engage the connector. The ram is movable between an initial position and a final position. A link is coupled between the ram and the handle. The link is variably positionable with respect to at least one of the handle or the ram to change the final position of the ram within the receiving space to control a shut height of the compression tool.

In another embodiment, a compression tool is provided for terminating wires to a connector that includes a frame that has a receiving space configured to receive the connector. A handle is rotatably coupled to the frame. A ram is held by the frame. The ram has an engagement end within the receiving space that is configured to engage the connector. The ram has an actuation end opposite the engagement end. The ram has at least two ram cradles in the actuation end. The ram is movable between an initial position and a final position. A link is coupled to the handle. The link has a ram end configured to be selectively received in the ram cradles. The final position of the ram within the receiving space is controlled based on the ram cradle in which the ram end is received.

In a further embodiment, a compression tool is provided for terminating wires to a connector that includes a frame that has a receiving space configured to receive the connector. The frame has at least two frame slots that define different travel paths. A handle is rotatably coupled to the frame. A ram is held by the frame. The ram has an engagement end within the receiving space that is configured to engage the connector. The ram is movable between an initial position and a final position. A link is coupled to the handle. The link has a selector configured to be selectively received in the frame slots and traveling along the corresponding travel path during actuation of the handle. The final position of the ram within the receiving space is controlled based on the frame slot in which the selector is received.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a front perspective view of a compression tool formed in accordance with an exemplary embodiment.

FIG. **2** is a rear perspective view of the compression tool with a portion removed for clarity.

FIG. **3** is a side section view of the compression tool with a portion removed for clarity.

FIG. **4** illustrates two section views of the compression tool, showing the compression tool in a large shut height position and in a small shut height position.

DETAILED DESCRIPTION OF THE INVENTION

FIG. **1** is a front perspective view of a compression tool **10** formed in accordance with an exemplary embodiment. The compression tool **10** is used for terminating wires (not shown) to a connector **12**. Optionally, the wires may be laced into a wire organizer integrated into the connector **12** and terminated to the connector **12** when the connector **12** is compressed within the compression tool **10**. Alternatively, a separate lacing feature, which is part of the compression tool **10**, may be provided and used with the compression tool **10** to terminate the wires to the connector **12**.

The compression tool **10** is operated to press the connector **12** onto the wires to terminate the wires to the connector **12**. For example, the connector **12** may include insulation displacement contacts (IDCs) that are pressed onto the wires to terminate the wires to the connector **12**. Optionally, the wires may be twisted wire pairs that are terminated to the connector **12**.

The connector **12** includes a housing **14** along a longitudinal axis **15** extending between a cable end **16** and a mating end **18**. A cable, including a plurality of the wires, is fed into the connector **12** through the cable end **16**. The cable may be terminated to the connector **12** inside of the housing **14**, or alternatively may be terminated to the connector **12** at the cable end **16**. The tool provides compression in a direction along the longitudinal axis **15** to terminate the wires to the connector **12**.

The compression tool **10** includes a frame **20** having a receiving space **22** that receives the connector **12**. The compression tool **10** also includes a handle **24** rotatably coupled to the frame **20** and a ram **26** held by the frame **20** and actuated by the handle **24**. The ram **26** has an engagement end **28** positioned within the receiving space **22** that is configured to engage the connector **12**. The ram **26** is moveable between an initial position and a final position to compress the wires into the connector **12** the wires to terminate the connector **12**. The ram **26** is moveable within the receiving space **22** in a direction parallel to the longitudinal axis **15** to press the connector **12** onto the wires.

In an exemplary embodiment, and as describe in further detail below, the ram **26** is variably positionable with respect to the handle **24** to selectively change a shut height of the compression tool **10**. The shut height is defined as a distance between the engagement end **28** of the ram **26** and an end wall **30** of the frame **20** that defines an end of the receiving space **22**. The connector **12** is pressed against the end wall **30**, and the end wall **30** defines a stop for the connector **12** during compression of the compression tool **10**.

During use of the compression tool **10**, the handle **24** is rotated or squeezed toward the frame **20** to a closed position. In the closed position, the handle **24** engages the ram **26** to stop the closing action of the handle **24**. As the handle **24** is squeezed closed, the handle **24** presses the ram **26** in a compression direction, shown by the arrow A, in which the engagement end **28** of the ram is pressed toward the connector **12** along the longitudinal axis **15**. The ram **26** is pressed from the initial position to the final position, and the final position of the ram **26** corresponds with the closed position of the handle **24**. In an exemplary embodiment, the ram **26** has more than one final position, such that the engagement end **28** of the ram **26** is positioned different distances from the end wall **30**, defining different shut heights.

The compression tool includes a link **32** that extends between the handle **24** and the ram **26**. Closing movement of the handle **24** is transferred to the ram **26** by the link **32**. In an exemplary embodiment, the link **32** is variably positionable with respect to at least one of the handle **24** or the ram **26** to change the final position of the ram **26** within the receiving space **22** to control the shut height of the compression tool **10**. The link **32** is variably positionable with respect to at least one of the handle **24** or the ram **26** to control an effective position of the handle **24** with respect to the ram **26** to define at least two final positions of the ram **26**. In the illustrated embodiment, the link **32** is variably positionable with respect to the ram **26** at a separable interface to change the shut height. Alternatively, the link **32** may be variably positionable with respect to the handle **24** to change the shut height.

The frame **20** includes a right shell **34** and a left shell **36** coupled together. The handle **24**, ram **26** and link **32** are received in the frame **20** between the right and left shells **34**, **36**. The frame **20** includes an opening **40** having at least two frame slots **42**, **44**, representing an upper frame slot **42** and a lower frame slot **44** with a connecting section **46** therebetween. Optionally, the frame **20** includes a J-shaped opening defining the upper frame slot **42** and a J-shaped opening defining the lower frame slot **44**. The upper frame slot **42** extends to a back end **43**. The lower frame slot **44** extends to a back end **45** (shown in phantom). Optionally, the back end **45** may be positioned further rearward than the back end **43**. The frame slots **42**, **44** define different travel paths. In an exemplary embodiment, the frame slots **42**, **44** define travel paths having different lengths. The link **32** includes a selector **48** that is received in the opening **40**. The selector **48** is positionable in one of the frame slots **42** or **44** to change the position of the link **32** with respect to the ram **26**. During actuation of the handle **24**, the selector **48** travels along the travel path defined by either the upper frame slot **42** or the lower frame slot **44**. A travel distance of the selector **48** may be different when traveling along the travel path defined by the upper frame slot **42** as opposed to the travel path defined by the lower frame slot **44**. The different lengths of travel correspond to different lengths of travel of the ram **26** within the receiving space **22**.

In the illustrated embodiment, the upper frame slot **42** is shorter than the lower frame slot **44**. The upper frame slot **42** is positioned forward of the lower frame slot **44**. When the selector **48** is in the upper frame slot **42**, the link **32**, and thus the ram **26**, is configured to be moved further forward such that the engagement end **28** is pressed further into the receiving space **22**. When the selector **48** travels along the travel path defined by the lower frame slot **44**, the link **32**, and thus the ram **26**, do not travel as far forward and thus the engagement end **28** does not travel as far forward into the receiving space **22**. The compression tool **10** is configured to accommodate longer connectors **12** when the selector **48** is in the lower frame slot **44**. The compression tool **10** accommodates shorter connectors **12** when the selector **48** is in the upper frame slot **42**.

FIG. **2** is a rear perspective view of a portion of the compression tool **10**, with the left shell **36** (shown in FIG. **1**) removed for clarity. The right shell **34** is illustrated in FIG. **2**, along with the handle **24**, the ram **26** and the link **32**.

The handle **24** includes an arm **60** extending between a fixed **62** and a free end **64**. The fixed end **62** includes posts **66** that extend outward and are received in pockets (not shown) of the frame **20**. A pivot axis **68** is defined through the posts **66**. The handle **24** is rotated about the pivot axis **68**. The posts **66** hold the handle **24** within the frame **20**. The arm **60** may be pushed or pulled between open and closed positions. In FIG. **2**, the arm **60** is shown in a closed position, while the open position is shown in FIG. **1**. The arm **60** includes a handle stop **70** extending from a bottom thereof. In the illustrated embodiment, the handle stop **70** is L-shaped. The handle stop **70** defines a latch that is configured to engage the ram **26** to hold the handle **24** in the closed position, such as for storage of the compression tool **10**.

The link **32** extends between a ram end **72** and handle end **74**. The ram end **72** engages the ram **26**. The handle end **74** engages the handle **24**. In the illustrated embodiment, the handle end **74** is fixedly coupled to the handle **24**. In the illustrated embodiment, the handle end **74** is rotatably coupled to the handle **24** using a pin **76**. As the handle **24** is moved between the open and closed position, the link **32** rotates about the pin **76**.

The ram end **72** is separably coupled to the ram **26**. The ram end **72** may be variably positionable with respect to the ram **26** to control the shut height of the compression tool **10**. For example, the ram **26** may be disengaged from the ram end **72** such that the link **32** may be repositioned with respect to the ram **26**, and then ram **26** may reengage the ram end **72** at a different portion of the ram **26**. The selector **48** is coupled to the link **32** at the ram end **72**.

The selector **48** may extend from one or both sides of the link **32** such that the selector **48** may be received in the opening **40** and/or a corresponding opening in the left shell **36** (not shown).

The ram **26** includes a body **80** extending between the engagement end **28** and an actuation end **82**. A portion of the body **80** extends into the receiving space **22**, while another portion of the body **80** is held internal of the frame **20**. In an exemplary embodiment, the ram **26** is spring loaded by a spring **84** that forces the ram **26** in a rearward direction. The force of the spring **84** may be overcome by closing the handle **24** to push the ram **26** forward into the receiving space **22**. The spring force **84** may also be overcome by pulling on finger grips **86** at the engagement end **28** to pull the ram **26** forward.

The body **80** includes a ram stop **88** extending from a top of the body **80**. The ram stop **88** defines a latch that engages the handle stop **70** to hold the handle **24** in the closed position. When the ram **26** is released, the spring **84** pushes the ram **26** rearward to hold the ram stop **88** in a blocking position over the handle stop **70**. Pulling on the finger grips **86** pulls the ram **26** forward such that the handle **24** may be released and the handle stop **70** is able to clear the ram stop **88** to move the handle **24** to the open position.

The ram **26** includes a plurality of ram cradles **90**, **92** in the actuation end **82**. The ram cradles **90**, **92** are configured to receive the ram end **72** of the link **32**. The ram end **72** is selectively received in either the ram cradle **90** or the ram cradle **92** to control the shut height. For example, the ram **26** may be actuated to different final positions within the receiving space **22** based on the ram cradle **90** or **92** in which the ram end **72** is received. The ram cradles **90**, **92** are open at the actuation end **82**. The ram cradles **90**, **92** have bottoms **94**, **96**, respectively, opposite the open ends thereof. The bottoms **94**, **96** are offset along a ram axis **98** extending between the engagement end **28** and the actuation end **82**. For example, the bottom **94** of the ram cradle **90** is offset forward (e.g., toward the engagement end **28**) with respect to the bottom **96**. The bottom **96** of the ram cradle **92** is offset rearward (e.g., toward the actuation end **82**) with respect to the bottom **94**. The ram cradle **90** is positioned above the ram cradle **92**.

A separating wall **100** is defined between the ram cradle **90** and the ram cradle **92**. In the illustrated embodiment, the ram cradles **90**, **92** are curved to receive the selector **48** at the ram end **72** therein. The spring **84** holds the ram **26** against the selector **48** and/or link **32** to hold the selector **48** within the corresponding ram cradle **90** or **92**. The ram cradles **90**, **92** are sized and shaped to hold the selector **48** therein. The separating wall **100** restricts movement of the selector **48** from one ram cradle **90** or **92** to the other ram cradle **90** or **92**. The separating wall **100** avoids accidental adjustment of the link **32** with respect to the ram **26**.

In order to move the link **32** from one ram cradle **90** or **92** to the other ram cradle **90** or **92**, the ram **26** is pulled forward against the spring bias of the spring **84** to a clearing position in which the ram end **72** may be freely moved up or down within the opening **40** to align the selector **48** with the upper frame slot **42** or the lower frame slot **44** (shown in FIG. **1**). Once the link **32** is properly positioned, the ram **26** may be released and the spring **84** pushes the ram **26** rearward until the selector **48** is positioned within the corresponding ram cradle **90** or **92**.

The ram cradles **90**, **92** define different driving points on the ram **26** for driving the ram **26**. The driving points are located at different depths from the engagement end **28** to change the final position of the ram **26** within the receiving space **22** to control the shut height of the compression tool **10**. For example, the upper ram cradle **90** defines a driving point position forward of the lower ram cradle **92**. When the selector **48** is positioned in the lower ram cradle **92**, the engagement end **28** is driven further forward within the receiving space **22**. The compression tool **10** accommodates shorter connectors **12** (shown in FIG. **1**) when the link **32** is received in the lower ram cradle **92**. When the selector **48** is positioned in the upper ram cradle **90**, the ram **26** is driven less into the receiving space **22**. The compression tool **10** accommodates longer connectors **12** when the link **32** is received in the upper ram cradle **90**. FIG. **3** is a side section view of the compression tool **10** with the left shell **36** (shown in FIG. **1**) removed for clarity. FIG. **3** illustrates the ram **26** in the clearance position such that the link **32** is freely moveable to the different positions for engaging different ram cradles **90**, **92**. For example, the link **32** may be lifted upward, such as in the direction of arrow B, or may be pressed downward, such as in the direction of arrow C, to position the selector **48** in alignment with the upper ram cradle **90** or the lower ram cradle **92**. Once the link **32** is positioned, the ram **26** is released and the selector **48** is loaded into the corresponding ram cradle **90** or **92**.

FIG. **4** illustrates two section views of the compression tool **10**, showing the compression tool **10** in a large shut height position **102** and in a small shut height position **104**. The left shell **36** (shown in FIG. **1**) has been removed for clarity.

The compression tool **10** is variably positionable between the large and small shut height positions **102**, **104** by toggling the selector **48** between an up position (corresponding with the large shut height position **102**) and a down position (corresponding with the small shut height position **104**). In the large shut height position **102**, the selector **48** is positioned in the upper ram cradle **90**. In the small shut height position **104**, the selector **48** is positioned in the lower ram cradle **92**. In the large shut height position **102**, the compression tool **10** has a first shut height **110** defined between the end wall **30** and the engagement end **28** of the ram **26**. In the small shut height position **104**, the compression tool **10** has a second shut height **112** defined between the end wall **30** and the engagement end **28** of the ram **26**. The second shut height **112** is smaller than the first shut height **112**, with the engagement end **28** of the ram **26** being positioned closer to the end wall **30** to accommodate smaller connectors **12** (shown in FIG. **1**). A difference **114** between the first and second shut heights **110**, **112** is shown in FIG. **4**. The amount of difference **114** may be different in alternative embodiments. Additionally, more than two different positions may be achieved by the compression tool **10** in alternative embodiments by providing more ram cradles, such as to accommodate more than two different sized connectors **12**.

The compression tool **10** has an effective arm length defined between the engagement end **28** and the pivot point between the link **32** and the handle **24**, defined at the pin **76**. The effective arm length determines the shut height. The effective arm length is a function of an effective ram length and an effective link length. The effective lengths are measured linearly along the longitudinal axis of the compression tool **10**.

The effective ram length is defined between the engagement end **28** and the bottom **94** or **96** of the ram cradle **90**, **92** that holds the link **32**. Because the bottoms **94**, **96** are positioned at different axial positions along the ram axis **98**, the effective ram length is variable based on which ram cradle **90** or **92** in which the link **32** is received. The bottom **94** of the upper ram cradle **90** is positioned forward of the bottom **96** of the lower ram cradle **92** making the effective ram length shorter when the link **32** is received in the upper ram cradle **90** and longer when the link **32** is received in the lower ram cradle **92**. In the illustrated embodiment, in the large shut height position **102**, the effective ram length is represented by a length **120**. In the small shut height position **104**, the effective ram length is represented by a length **122**. The length **122** is longer than the length **120**.

The effective link length is defined between the engagement point between the selector **48** and the bottom **94** or **96** and the pivot point at the pin **76**. The effective link length is also controlled based on an angle **124** or **126** of the link **32**. Because the link **32** is rotatable, the angles **124**, **126** are different, which affects the effective link length. In the illustrated embodiment, in the large shut height position **102**, the effective link length is represented by a length **128**. In the small shut height position **104**, the effective link length is represented by a length **130**. When the link **32** is received in the upper ram cradle **90**, the effective link length **128** is longer. When the link **32** is received in the lower ram cradle **90**, the effective link length **130** is shorter because the angle **126** is greater than the angle **124**.

The effective arm length is the sum of the effective ram length and the effective link length. In the illustrated embodiment, in the large shut height position **102**, the effective arm length is represented by a length **132**. In the small shut height position **104**, the effective arm length is represented by a length **134** which is longer than the length **132**. Because the effective arm length **134** is longer than the effective arm length **132**, the shut height **112** is smaller than the shut height **114**. In the small shut height position **104**, the ram **26** is pushed further forward into the receiving space **22** closer to the end wall **30**.

The compression tool **10** includes an assembly that allows the shut height to be selectable to accommodate different size connectors **12**. The selector **48** is variably positionable with respect to the ram **26** to change the effective arm length of the ram **26**/link **32**. The ram **26** has different ram cradles **90**, **92** to receive the selector **48** to vary the position of the link **32** with respect to the ram **26**. The frame **20** has different frame slots **42**, **44** that accommodate the selector **48** in the different positions. In an alternative embodiment, the link **32** may be variably positionable with respect to the handle **24** in addition to, or in the alternative to, the ram **26** to define multiple shut heights for the compression tool **10**.

It is to be understood that the above description is intended to be illustrative, and not restrictive. For example, the above-described embodiments (and/or aspects thereof) may be used in combination with each other. In addition, many modifications may be made to adapt a particular situation or material to the teachings of the invention without departing from its scope. Dimensions, types of materials, orientations of the various components, and the number and positions of the various components described herein are intended to define parameters of certain embodiments, and are by no means limiting and are merely exemplary embodiments. Many other embodiments and modifications within the spirit and scope of the claims will be apparent to those of skill in the art upon reviewing the above description. The scope of the invention should, therefore, be determined with reference to the appended claims, along with the full scope of equivalents to which such claims are entitled. In the appended claims, the terms "including" and "in which" are used as the plain-English equivalents of the respective terms "comprising" and "wherein." Moreover, in the following claims, the terms "first," "second," and "third," etc. are used merely as labels, and are not intended to impose numerical requirements on their objects. Further, the limitations of the following claims are not written in means-plus-function format and are not intended to be interpreted based on 35 U.S.C. §112, sixth paragraph, unless and until such claim limitations expressly use the phrase "means for" followed by a statement of function void of further structure.

What is claimed is:

1. A compression tool for terminating wires to a connector, the compression tool comprising:

a frame having a receiving space configured to receive the connector, the frame having at least two frame slots that define different travel paths, the travel paths having different lengths;

a handle rotatably coupled to the frame;

a ram held by the frame, the ram having an engagement end within the receiving space that is configured to engage the connector, the ram movable between an initial position and a final position; and

a link coupled between the ram and the handle and the link being in contact with the ram and with the handle, the link being variably positionable with respect to at least one of the handle or the ram to change the final position of the ram within the receiving space to control a shut height of the compression tool, the link having a selector configured to be selectively received in the frame slots and traveling along the corresponding travel path during actuation of the handle, wherein the final position of the ram within the receiving space is controlled based on in which frame slot the selector is received.

2. The compression tool of claim **1**, wherein the link is variably positionable with respect to at least one of the handle or the ram to control an effective position of the handle with respect to the ram to define at least two final positions of the ram.

3. The compression tool of claim **1**, wherein the ram has at least two final mating positions corresponding to different shut heights, the final positions being controlled based on the position of the link with respect to the ram.

4. The compression tool of claim **1**, wherein the ram has an actuation end opposite the engagement end, the ram having at least two ram cradles in the actuation end, the link being selectively received in a corresponding ram cradle to control the final position of the ram within the receiving space.

5. The compression tool of claim **1**, wherein the at least two frame slots are open along an exterior side of the frame, the selector being exposed along an exterior of the frame to be actuated by a user to one of the at least two frame slots.

6. The compression tool of claim **1**, wherein the ram has an actuation end opposite the engagement end, the ram having at least two ram cradles in the actuation end, the link being selectively received in the ram cradles, the ram cradles having bottoms at different distances from the engagement end to control the final position of the ram within the receiving space based on the ram cradle in which the link is received.

7. The compression tool of claim **1**, wherein the frame includes an end wall at an end of the receiving space, the shut height being defined between the engagement end and the end wall when the ram is in the final position.

8. The compression tool of claim **1**, wherein the link is pivotably coupled to the handle at a pivot point, the compression tool having an effective arm length defined between the pivot point and the engagement end, the effective arm length being variable by varying the position of the link with respect to the ram.

9. The compression tool of claim **1**, wherein the ram extends along a ram axis between the engagement end and an actuation end, the ram having ram cradles at the actuation end, the ram cradles being open at the actuation end, the ram cradles having bottoms opposite the open actuation ends thereof, the bottoms being offset in a direction along the ram axis.

10. The compression tool of claim **1**, wherein the at least two frame slots are defined by a J-shaped opening defining an upper frame slot and a J-shaped opening defining a lower frame slot with a connecting section therebetween, the upper frame slot having a back end, the lower frame slot having a back end rearward of the back end of the upper frame slot.

11. The compression tool of claim **1**, wherein the ram is movable with respect to the frame, the ram changing relative position with respect to the frame slots as the ram is moved from the initial position to the final position.

12. A compression tool for terminating wires to a connector, the compression tool comprising:

a frame having a receiving space configured to receive the connector, wherein the frame has at least two frame slots that define different travel paths, the travel paths having different lengths;

a handle rotatably coupled to the frame;

a ram held by the frame, the ram having an engagement end within the receiving space that is configured to engage the connector, the ram having an actuation end opposite the engagement end, the ram having at least two ram cradles in the actuation end, the ram movable between an initial position and a final position; and

a link coupled to the handle, the link having a ram end configured to be selectively received in the ram cradles, wherein the final position of the ram within the receiving space is controlled based on the rain cradle in which the ram end is received, the link having a selector configured to be selectively received in the frame slots and traveling along the corresponding travel path during actuation of the handle, wherein the final position of the ram within the receiving space is controlled based on which frame slot the selector is received.

13. The compression tool of claim **12**, wherein the link is variably positionable with respect to the ram to control an effective position of the handle with respect to the ram to define at least two final positions of the ram.

14. The compression tool of claim **12**, wherein the ram has at least two final mating positions corresponding to different shut heights, the final positions being controlled based on the position of the link with respect to the handle and the ram.

15. The compression tool of claim **12**, wherein the ram cradles have bottoms at different depths from the engagement end to control the final position of the ram within the receiving space based on the ram cradle in which the link is received.

16. The compression tool of claim **12**, wherein the link is pivotably coupled to the handle at a pivot point, the compression tool having an effective arm length defined between the pivot point and the engagement end, the effective arm length being variable by moving the ram end of the link into a different ram cradle.

17. The compression tool of claim **12**, wherein the ram extends along a ram axis between the engagement end and the actuation end, the ram cradles being open at the actuation end, the ram cradles having bottoms opposite the open ends thereof, the bottoms being offset along the ram axis.

18. A compression tool for terminating wires to a connector, the compression tool comprising:

a frame having a receiving space configured to receive the connector, the frame having at least two frame slots that define different travel paths;

a handle rotatably coupled to the frame;

a ram held by the frame and movable relative to the frame, the ram having an engagement end within the receiving space that is configured to engage the connector, the ram movable between an initial position and a final position, the ram changing relative position with respect to the frame slots as the ram is moved from the initial position to the final position; and

a link coupled to the handle, the link having a selector configured to be selectively received in the frame slots and traveling along the corresponding travel path during actuation of the handle, wherein the final position of the ram within the receiving space is controlled based on the frame slot in which the selector is received.

19. The compression tool of claim **18**, wherein the link is variably positionable with respect to the ram to control an effective position of the handle with respect to the ram to define at least two final positions of the ram.

20. The compression tool of claim **18**, wherein the ram has at least two final mating positions corresponding to different shut heights, the final positions being controlled based on the position of the link with respect to the handle and the ram.

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